

REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Claims 1-4, 6 and 9 are currently being amended.

This amendment changes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

After amending the claims as set forth above, claims 1-11 are now pending in this application.

Drawings

The drawings were objected to for including reference signs not mentioned in the description. Applicant has amended the specification to include the reference signs “101” and “102”, and submit that the objection has been overcome.

Specification

The abstract was objected to for containing reference numerals. Applicant has amended the abstract to remove the reference numerals and submit that the objection has been overcome.

Rejections under 35 U.S.C. § 112 , second paragraph

Claims 6 and 7 stand rejected under 35 U.S.C. § 112, second paragraph. Applicant has amended claim 6 to replace “capacity” with “length”, and submits that the rejection has been overcome.

Rejections under 35 U.S.C. §§ 102 and 103

Claims 1-7 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,733,085 to Flora et al. (hereafter “Flora”). Claims 8 and 9 stand rejected under

35 U.S.C. § 103(a) as being unpatentable over Flora. Applicant respectfully traverses this rejection for at least the following reasons.

Independent method claim 1 has been amended to clarify that in the data repairing step, the divided data items and the parity data are fetched from the cache modules (where the divided data items and parity data are respectively stored), and one of the divided data items is repaired, if the one data item is damaged, using the parity data and only the remaining ones of the divided data items. Thus, in claim 1, if one of the divided data items is damaged, that data item is repaired using the parity data and only the remaining ones of the divided data items. Flora fails to suggest this feature of independent claim 1.

Flora discloses a plurality of buffers 13-0 to 13-38, where buffers 13-0 through 13-31 temporarily store the respective bits of a 32 bit word, and buffers 13-32 to 13-38 store parity bits. In the error checking procedure of Flora, the contents of all of the buffers are applied to the error circuitry (see col. 4, line 65 to col. 5, line 25). Thus, Flora fails to suggest that if one of the divided data items is damaged, that data item is repaired using the parity data and only the remaining ones of the divided data items, and claim 1 is patentable over Flora for at least this reason.

Further, the claimed invention provides advantages not realized by Flora. In implementing the claimed invention, on-line maintenance and replacement of damaged cache modules is possible. If a cache module fails, data can be generated with the remaining divided data items and parity data, and thus on line maintenance and replacement of damaged cache modules is possible. In the Flora system the buffers 13-0 to 13-38, controllers 12-0 to 12-38 and disk drives 10-0 to 10-38 are connected respectively in a one-on-one fashion, and the deterioration of data is prevented by dividing the data to a plurality of single disks. In this configuration when one of the buffers is damaged, read/write data transfer cannot be performed to the disk drive and redundancy is lost.

Independent claims 2, 3, 4 and 9 repair damaged divided data items, or divided data items in a damaged module, in a similar fashion to independent claim 1, using the parity data and only the remaining ones of the divided data items. Thus, independent claims 2, 3, 4 and 9 are patentable for at least the same reasons as independent claim 1.

The dependent claims, 5-8 and 10-11, are patentable for at least the same reasons as independent claim 4, from which the dependent claims ultimately depend, as well as further patentable features recited therein. For example, claim 8 recites that the number of divided data items is set one smaller than a number of the cache modules, a feature not suggested by Flora. This arrangement of divided data items and cache modules provides advantages not realized by Flora. As discussed on page 13, lines 13-24, such an arrangement allows a greater capacity of the caches to be assigned to the storage of transfer data, allowing mass transfer of the data at a time.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

Date March 17, 2004

By Thomas G. Bilodeau

FOLEY & LARDNER LLP
Customer Number: 22428
Telephone: (202) 672-5407
Facsimile: (202) 672-5399

Thomas G. Bilodeau
Attorney for Applicant
Registration No. 43,438